PUBLIC ACCEPTANCE OF SEWER FAILURES AND REHABILITATION WORKS: A CASE-STUDY FROM FRANCE AND PORTUGAL

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ABSTRACT

European cities face problems of sewerage and storm water systems wearing out, due to a combination of ageing infrastructure and increased urbanization. Its rehabilitation urges. This paper deals with disturbances on individuals’ quality of life due to failures or rehabilitation works. It presents the results of a case-study which comprehends two target-areas: Nantes metropolis in France, and two municipalities of Lisbon metropolis in Portugal. On both areas a questionnaire was applied to a sample of target-populations.

This research results indicate that sewer failures and rehabilitation works are events that induce on disturbances especially in what concerns to the areas of housing and nearby surroundings. Nevertheless, being distinct type of situations, disturbances are lived in different ways as well as differently tolerated. This study also showed that those critical events may provoke, under certain circumstances, trust erosion of customers towards sewerage utility. The last section aims at providing guidelines that could help local operators to set up a “consumer policy” especially in what concerns to sewer failures and rehabilitation works.

KEYWORDS: Critical events; social acceptability; sewer networks; user

INTRODUCTION

Since the beginning of the 1990s, local public services operators have been paying greater attention to user satisfaction and demands. Quality and proximity are among the most important principles that frame a new pattern of relations between operators and users. Wastewater services are but no exception to these new requirements. The challenge they face is all the more difficult to answer that they deliver a service which is deeply embedded in the routine of daily life, and that most European cities face problems of sewerage and storm water systems wearing out, due to a combination of ageing infrastructure and increased urbanization. Its rehabilitation urges. This will, in turn, imply huge investments of governments as well as an increased effort of citizens, as taxpayers and sewer system users.

1 This paper is based on a research pursued under the EU project Computer Aided Rehabilitation of Sewer Networks (CARE-S), contrat n° EVK1-CT-2002-00106. Sponsored by the fifth European Union Framework Programme, CARE-S aims to establish a rational framework for sewer network rehabilitation decision-making.
Within this context, it is important to deepen the knowledge on individuals experience, attitudes and views about sewer renewal works and sewer failures. They are what we call critical events: they are likely to happen and may also put to the test the pattern of relations between users and operators. This paper presents the main results of a case-study dedicated to such issues. It comprehended two target-areas: Nantes metropolis in France, and two municipalities of Lisbon metropolis in Portugal, Amadora and Oeiras. Three sections compose this paper. The first one provides an overview of the theoretical framework. The second one is dedicated to the presentation of the surveys that have been conducted in the two areas. The last one exposes some guidelines for the design of a customer policy, especially in case of the so-called critical events.

THEORETHICAL FRAMEWORK

Sewerage and the routine of daily life

In pre-modern societies, wastewater was, in great part, (un)handled by individuals and households. Under the auspices of hygienist current, a new way of dealing with sewage got started in Europe around 19th century. This one stood, as known, on a network system of water delivery and wastewater drainage. Modern sewerage induced on, what it may be called as, a silent revolution of urban and social quality of life. Sewer networks became trivial infrastructures, completely internalised on daily life of most citizens.

Sewer systems belong to what Giddens (1991) calls expert systems. Being of the responsibility of experts embodied on specific organisations, their central function of human needs fulfilment contrasts with the rather non-reflexive daily use, on the part of individuals. In other words, citizens are fundamentally passive users of sewerage system. They ignore how it works, but use it in a compulsory, non-reflexive and unquestioned way. Such daily use is founded on a kind of faith on those systems’ well functioning, which in turn elapses from the belief on the trustworthiness of expertise involved on it. Besides, it also elapses from the daily confirmation, through experience, of its good-functioning. By contrast, abnormal situations, or what Giddens (1991) calls critical events, will induce on some kind of disruption to individual daily life or community routine. Critical events create what Giddens (1991) names as access points, that is to say places or situations through which connections between expert system delegates and lay individuals happen. Such interactions may either reinforce trust on expert systems and who represents them, or open breaches on individuals’ level of trust, and this transforms the so-called access points into crucial “places” of vulnerability.

Critical events associated with sewerage

Concerning sewerage type of expert system, we advance with two types of critical events, as follows: sewer failures and sewer rehabilitation works, particularly those that involve digging techniques. Sewer failures are defects or misfunctions, which impede a certain pipe or network of achieving the required level of performance. Sewer failures may provoke impacts at two levels, as follows: relation between users and sewerage utility; and individuals’ quality of life. As concerns the first one, it is hypothesised that bad experiences tend to generate trust erosion on services level of performance.

2 By quality of life, we mean the capacity of a society to satisfy (or not) its members material and non-material needs, in a set of areas of life which range from health, housing, work, family to education, leisure, politics, religion, safety and sustainable physical environments (Setien: 1993).
At the level of quality of life, it is hypothesised that impacts may be felt on five areas, namely health, safety, housing, work and physical environment.

Similarly to sewer failures, what makes rehabilitation works\(^3\) critical events elapses from the potential of disturbance they can cause on individuals’ quality of life as well as on their view about organisation that promotes works. We foresee that, whenever occurring, rehab works’ impacts will fall upon the same general areas as for failures.

Not every failure or sewer rehabilitation induces on impacts to individuals and, consequently, on a declining of quality of life. Furthermore, even when occurring not every impact is experienced as disturbing for individuals well being. Two general types of parameters may influence the above-mentioned occurrence and degree of disturbance of impacts: characteristics of critical event, namely its nature and intensity, and the socio-ecological context where they happen, namely dimensions related with land-use: critical events impacts will vary whether it happens in a rural and low population area or in an urban highly populated one, and whether we are on a residential or shopping or services area.

FIELDWORK

Presentation of the case-studies

As mentioned above, we ran a survey on users’ attitudes and expectations in two target-areas: Nantes metropolis and two municipalities of Lisbon metropolis, Amadora and Oeiras. Among other differences between the two target-areas, it is found as pertinent to emphasise on the following one. Globally, the user and costumer seem to occupy a subaltern place on Amadora-Oeiras general policy and management. In other words, user’ policy is not on the list of company main worries and priorities. Instead, operational and “hard engineering” tasks seem to fill company daily routine and medium-term planning. By contrast, as far as it was possible to observe along fieldwork, the user seems to have a place on Nantes Sanitation Department policy and sector management.

On both areas a questionnaire was applied to a sample of target-populations. Besides the two main target-groups, individuals with experience of sewer failures and individuals living or working on areas recently target of sewer rehabilitation operations, it was made the option of including a third group of individuals on the sample: individuals without experience at any of the above-mentioned critical events\(^4\). This last group intended to function as a control group along data analysis. Due to the lack of a robust basis concerning the universe of victims of both type critical events, the option was to adopt the so-called purposive type of sampling: individuals have been chosen according to pre-defined criteria. Apart from the above-mentioned criteria experience of critical events, it was established that sample should, among others, include residents and professionals (shopkeepers and other liberal professions).

Being three the number of target-groups in this study, the option was to elaborate three questionnaires with some common parts. The three questionnaires are composed by closed and open questions. As concerns the fieldwork, except for Nantes failure-victims, who were randomly selected through 2004 file on occurred failures of Sewerage Company, the inquiry followed a “site” type of procedure:

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3 We will make the option of to use the term “rehab works” as an abbreviation of sewer rehabilitation works.

4 For practical reasons, this target-group was named as “non-victims”.
sites were previously chosen and interviewees were then randomly selected. In Nantes, 219 interviews were done, 91 with victims of failures, 79 with rehab works subjects and 49 with non-victims. In what concerns Amadora-Oeiras target-area, 201 interviews were done, 85 of them with failure victims, 80 with rehab works subjects and 36 with non-victims. The interviews were carried out by a group of trained interviewers. The great majority of them were face-to-face interviews; with exception of some Nantes interviews that were done by telephone. On this last case, the questionnaire was previously sent to the potential respondent, so that this one could see the questions by him and respond to them.

Main results

**Impacts of critical events experience on quality of life.** This research shows that failures and rehab works are two types of events that induce on some kind of impact on individuals’ quality of life on the areas of housing, health & well being, physical environment and finances & work.

Housing or work place area of quality of life appears, both in Amadora-Oeiras and Nantes, as one of the areas where impacts of failures where felt as more disturbing by individuals. At the basis of this is fundamentally the feeling of discomfort associated with temporary usefulness of parts of the house and, in the case of Lisbon, material damages. In parallel, impacts at surroundings level were also frequently stated, especially at Lisbon, where difficulties of public space use and usufruct were found as disturbing.

In what concerns to rehab works, at Nantes housing space continues to appear as the area where more disturbances where felt. Meanwhile, in Amadora-Oeiras sample nearby surroundings emerge as the area where impacts were felt as more significant. These ones were mainly concerned with difficulties of accessibility to house or workplace as well as car and pedestrian mobility.

Where differences between failures and works become more evident is when we turn to critical events’ degree of acceptability. In fact, failures are mainly perceived as unacceptable or hardly bearable events, meanwhile rehab works impacts are fundamentally viewed as more acceptable. For example, in spite of being mainly perceived as events of low significance, a half of Nantes interviewees classified experienced sewer failures as something “hardly tolerable” or as “unacceptable events, which cannot happen and should definitely be avoided”. Such attitude of intolerability tends to be higher among the sub-group of professionals as well as victims of structural type of failures. As far as it was possible to infer, impacts don’t need to be felt as disturbing for failures to be found as unacceptable events.

**Impacts of critical events experience on trust.** This study reunites two distinct groups or situations. We refer, on the one hand, to the case of a non-negligible amount of Amadora-Oeiras interviewees, who manifested distrust on sewerage services performance. On the other hand, at Nantes sample the tendency is for global manifestation of trust on sewerage services technical capacity to manage sewerage.

As far as it was possible to infer, in Lisbon case study experience at the access points, following a critical event, had influence on trust erosion or distrust perpetuation. At Nantes, those events’ experience didn’t have particular effects at this level. The nature of critical events may play a role at the level of trust impact. Nevertheless, this role seems to be certainly secondary, in face of the primary influence of sewerage utilities way of managing critical events and dealing with costumers at access points. This is especially evident at Amadora-Oeiras case study. Here, perceived efficiency of sewerage services was justified with the judgement of works as having occurred without problems or
with the fact that failures were solved. On the contrary, perceived inefficiency was justified with services incapability to solve the failure or, in case of rehab works, with the too long duration of them, re-appearance of sewer problems and, curiously, with the systematic trench re-opening.

In what concerns to Nantes, sewerage department user policy, stood on proximity and quality parameters, may have played an important role of absorbing impacts and avoiding trust erosion syndromes. The above-mentioned trend has the merit of detaching the importance of a proper user policy, namely under situations of critical events.

Public expectancies towards sewerage services performance. This is definitely an issue were Amadora-Oeiras and Nantes interviewees do meet. Most of them value and want a sewerage service to be efficient on problem solving, fast on answering to the costumer and easy to contact, in case of need. The remaining components appear as secondary. Nevertheless, at least in Amadora-Oeiras case study, we noted that some failure victims valued financial compensation and some rehab subjects stated the importance of assuring a satisfactory explanation to the client.

MANAGING RELATION WITH THE PUBLIC IN FACE OF CRITICAL EVENTS

This last section aims at providing guidelines that could help local operators to set up a “consumer policy” especially in what concerns to sewer failures and rehabilitation works.

The case of sewer failures

Three parameters emerge as central to a policy of relation with the customer, in case of sewer failures, as follows: accessibility, commitment on solving customer’ problem and explanation to the customer.

Fieldwork revealed that sometimes customers, when faced with a sewer failure or other type of sewer problem, ignore to whom to turn to. One of the most immediate consequences of such situation is the length of time the issue lasts until its handling or solution. The contact with wrong persons, services or departments, before the right ones, is time consuming and exhausts customers’ patience. That’s why accessibility, which concerns the way of approaching the sewerage utility in case of need, should be an easy one, diverse and previously known by customers. Easiness refers, on the one hand, to the existence of a direct and fluid channel of communication with the public and, on the other, to the guarantee that the customer contacts, at first place, with the right person or department. By diversity, we mean the assurance of several ways of entering on contact with the utility. These ones range from the more traditional ways (such as telephone, mail letter or personal visit) to the use of new technologies of information, the Internet.

By commitment, we mean the guarantee of failure resolution in a reasonable time. The ideal scenario is to solve the problem in a definitive way. Failure re-occurrence is particularly critical for utility’s credibility as well as for the customer quality of life. Nevertheless, fieldwork also revealed that some failures turn on a real challenge for the utilities. This was especially evident on some cases of bad odour at Nantes case study. The underlying failure of such sewer effect was not immediately evident for operational staff or implied a more structural and time-consuming solution. On the user side, such type of situation tends to generate impatience and misunderstanding about reasons underlying the delay of problem solving. The only way of mitigating such adverse is through the guarantee of proper
communication with the customer. Here, it appears as fundamental to assure a full explanation of the problem to the customer and, if necessary, to negotiate with him a time scale to problem resolution.

The last parameter, explanation, concerns the importance of guaranteeing, whatever the type of failure and its difficulty of solving, an explanation or response to customers asking for support or claiming. Such explanation implies the delivery of information, in a friendly language, about what happened, why it happened and how the utility solved or intends to solve the problem (OFWAT, 2001). Apart from the effect it has on preventing customers’ trust erosion towards the utility, the delivery of an explanation may turn into a way of transforming customers into more aware users. Besides, such requisite can, sometimes, become an opportunity to inform customers about the most proper way of dealing with sewer network and avoid behaviours that can favour the occurrence of a sewer problem.

The case of rehab works

As for sewer failures, three parameters emerge as central to a user’ policy: information based on pamphlet delivery; contact through public meeting; mediation by a contact officer.

According to data gathered during the fieldwork, users have increasing demands as concerns information. Pamphlet should at least contain the following information: planning, with the date of start and the estimated duration of the works; nature and benefits of the works, for the users and for the environment; possible consequences; whom to contact in case of question / problem. If it is delivered too early before works start, information could be then partially forgotten; on the contrary, if it is delivered too shortly before the beginning, people could have the feeling they have been taken by surprise: “one warns us at the last time”. Operators have to aim at the happy medium…

Public meetings before works start should occur, but probably not on a systematic way. The decision should be based on parameters such as: the nature of works, their duration, the place where they will take place. They give the operator an opportunity to explain the motivation underlying works, to deliver once again information awaited by inhabitants, to let people express their fears (access to the house / shop; traffic perturbation; use of toilets) and to cope with them. Meetings may be also opportunities for the operators to get information about specific local constraints or requirements that could not have been previously identified. For example in Nantes, inhabitants living in big buildings were annoyed about the works because these works took place in summer and due to them children on holiday had no more access to the small pool where they were accustomed to playing. Retailers may have also specific concern and questions, and will probably appreciate to have the opportunity to put them on the table with representatives of the city. Let us finally emphasise that people or groups who attend such meetings are not necessarily those who may suffer most from the works. Social barriers may hinder people from attending such meetings, e.g. difficulties to speak in public. It’s the responsibility of the operator to be aware of such problems.

Action is always a source of unexpected events. Even when works have been carefully prepared, things may turn wrong: for example, a company may have difficulties to respect schedules or security instructions, and people may get dissatisfied about the possible consequences of this behaviour. Some of these problems can be solved without a specific intervention from the operator, but according to the experience of Nantes Metropole, a mediator may intervene advisedly, for example to check out that companies do respect their schedule, or to help people managing their access / exit problems… Moreover local residents tend to question and interact directly with every accessible staff member, whatever his real status and role in the works. From the resident’s point of view, anyone being present
on the workplace is more or less a representative of the municipality / operator and thus is likely to be viewed as a possible source of information. Therefore basic information about the works (why? how long?...) should be delivered to anybody likely to be in contact with residents.

CONCLUSION

Our research has shown that sewer failures and rehabilitation works induce on disturbances on individuals’ quality of life, especially in what concerns to the areas of housing and nearby surroundings. In both case studies, the type of critical event, failure or work, influences acceptability more than the perceived level of impacts’ intensity. Critical events are also at the origin of access points, which are important for trust maintenance between users and operators. These findings seem to be robust. But unquestioned exercises of results’ extrapolation contain risks. This study wasn’t conceived with that ambition. Besides, the nature of research subject doesn’t allow too many extrapolations. Impacts of critical events, jointly with the way they are lived by individuals, are extremely dependent of events’ characteristics and context variables. We couldn’t advice more warmly each operator to follow our methodology to conduct that kind of study locally.

BIBLIOGRAPHY


